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The Hook Up

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A ROUND ROBIN CIRCUIT LINKING FARM & HOME BROADCASTERS

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U. S. Department of Agriculture

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JUST TO GET HOOKED UP

The Hook Up changes editors with this issue. Wallace Kadderly (editor for one month) has turned over the pages to John Baker, newly appointed radio extension specialist.

The Hook Up is intended to be a publication of, by, and for extension workers using radio as one medium of communication. This means that contributions from you will be--not only acceptable--they'll be absolutely necessary. Tell us what you're doing in the way of broadcasting, what kind of results you're getting, the new program ideas you're trying, or anything else that concerns you and radio.

In this issue, you'll want particularly to study Secretary Wallace's Farm and Home Hour anniversary talk, and Dr. Jansky's report on factors which affect a radio station's coverage. They are placed at the end so you can detach them for your reference file.

If these and other stories don't interest you, better send in something better for the next issue.

RUTGERS GETS GUARANTEED TIME

Wallace Moreland, extension editor of Rutgers University, (New Jersey, in case you need to be reminded) reports that Station WOR, Newark, has given a guarantee of time for three weekly programs presented by the Rutgers Extension Service and cooperating agencies. Two of these programs are the Radio Garden Club, which was started in 1932, and is heard each Monday and Friday at 1:30 p.m. The third program is the Homemakers Forum, revived on June 29, to be heard on Wednesday afternoons, not only over WOR but also on the Mutual Network. As part of the agreement with the radio station, the Extension Service will organize study groups over New Jersey which will use the Homemakers Forum broadcasts as part of their course of study.

Here's the way Director H. J. Baker of the Rutgers Extension Service feels about it: "The offer of Station WOR to guarantee time will obviate any difficulties that might arise from commercially sponsored programs asking for the periods assigned for our educational broadcasts. To the best of my knowledge and belief, no other Land Grant college or university is receiving such substantial cooperation from a major radio station as is represented in the agreement between Rutgers and WOR. On a year basis the value of the time guaranteed to the Extension Service totals nearly \$38,000."

And from the broadcaster's point of view, this is what A. J. McCosker, president of the company operating WOR, has to say: "In bringing back the Homemakers Forum and continuing the Radio Garden Club as a twice weekly highlight, we have done so with the conviction that both of these programs, so ably prepared and presented by the Extension Service of Rutgers University, have proved of inestimable value to the adult radio listener. We feel that in broadcasting these programs on a guaranteed time basis we are pursuing a necessary public function by giving this great New Jersey educational institution an opportunity to further the expansion of its work on the largest possible scale."

What's your best story on the use of radio? Send it to Radio Service, U. S. Department of Agriculture, Washington, D. C.

330 FEET STRAIGHT UP

What's happened to WOSU? That's what farmers over Ohio have been wondering of late, reports Gerald Ferris, in charge of agricultural broadcasting for the Ohio State University Extension Service. Listeners in far corners of the State who could not previously hear the University station have been reporting that the signal comes in with plenty of the stuff that radio engineers call "sock."

The answer? No, not an increase in power; a new 330-foot vertical antenna. (Ed.--See excerpts from Dr. Jansky's article on power versus other factors affecting radio signal strength.)

As a result of greater efficiency of the antenna, such programs as the Farm Night, daily Farm Flashes, weather, markets, daily Homemakers Helps, and special broadcasts during agricultural events get into rural homes which used to be outside the listening area of WOSU.

WKAR MAKES SHORT WAVE PICK-UPS

Short wave radio has come into the picture of agricultural broadcasting over WKAR, the Michigan State College station at East Lansing. Robert J. Coleman, director of WKAR, reports that the station has a truck equipped with a portable short-wave transmitter, which can be moved to almost any part of the campus or university farm, for "on-the-spot" broadcasts. A motor and generator provide power for the transmitter.

Listeners to WKAR's farm programs have heard a number of educational programs originating at the scene of action. They heard a description of a spraying demonstration for the control of canker worms, taking place on a golf course four miles from the station transmitter; the following week they traveled about the campus with a botanist engaged in identifying and labeling shade trees; a week later, they journeyed to the college farm where sheep used in a pasture grazing experiment were being weighed, to determine gains and the effect on the pasture.

The Hook Up needs HELP! HELP!!

WILDLIFE IN CLASSROOM

Students in the John Marshall High School in Cleveland, Ohio, are learning conservation of wildlife as part of their regular course of study, and part of their material is found in the form of transcripts of the conservation talks given by Howard Zahniser, of the Bureau of Biological Survey, broadcast once a week as part of the National Farm and Home Hour.

RADIO IN THE FORESTS

Two-way radio communication is being developed for fire trucks and cars in the Federal Forest Service, according to F. A. Silcox, chief of the Service. The new equipment soon to be installed will enable men on the fire fighting vehicles to keep in touch with headquarters at all times, making reports and receiving orders. This will make it possible for a dispatcher to re-route a truck to a new and more dangerous fire, and will help in eliminating long and uncertain runs.

Radio in America is free to the listener, but, even so, American listeners are estimated to have invested about \$1,350,000,000 in receiving sets.

IT SEEMS TO THE EDITOR:

Having the responsibility for the pages of any publication should carry some privileges, and one privilege connected with editing the "Hook Up" is to express an opinion on broadcasting by extension workers in general, Federal, State, and county. It isn't perfect; some of it isn't even fair. But it can be improved with time, study, and effort.

But there's one shortcoming which can be corrected quickly: that's the matter of publicity for broadcasts. It takes an outstandingly good program to build up its own publicity. It isn't likely that a county agent will stimulate as much discussion among listeners as a top notch comedian. So it takes a little extra promotion to add extra listeners.

It sizes up this way: preparing a broadcast takes time. If only a hundred people hear a radio talk that took two hours to prepare, perhaps those two hours might have been used to better advantage in some other way; radio isn't doing all the job that it should. On the other hand, if the listening audience for that radio talk can be built up to a thousand or several thousand actively interested listeners, then radio begins to fill the place that it should occupy in an extension program.

So, why shouldn't every circular letter going out from the County Extension office carry a line or two saying, in effect: "Listen to your county agent each Tuesday noon at 12:15 over Station ROAR?" When the State Extension office sends out literature of any kind, why not have a line or two, or perhaps a small box on the first page, to call attention to regularly scheduled broadcasts by State Extension workers? Again, why not?


The first reminder of this kind may not produce noticeable results. But try it with every piece of literature going out from the State or county office, and see if your audience hasn't increased by the end of six months.

Probably you've read the story from Wally Moreland about the guaranteed time basis upon which the Rutgers Extension broadcasts are now operating over WOR and the Mutual Network. (You're allowed time out right now to read it if you haven't.)

Perhaps it took some "selling" to establish these programs on a guaranteed time basis, but put this down on your memo pad: no radio station or network guarantees \$38,000 worth of time for sustaining shows unless those shows are building and holding an audience. If you'd like to get your own programs on a guaranteed time basis with any station, take a tip from Rutgers and put on programs so interesting in subject matter and presentation that you can prove that you're increasing the audience for the station.

Secretary Wallace's talk on the occasion of the 3000th National Farm and Home Hour furnishes the philosophy which underlies the cooperative relations between radio stations or networks and those who would use their facilities for educational purposes. After you've read it the first time, probably you'll want to take a second look and then file it away for future reference.

Hope to be Hooking Up with you again soon,


Radio Extension Specialist.

THREE THOUSAND IN A ROW

Broadcasting of agricultural and homemaking programs reached another milestone on Monday, June 27, 1938, when the three-thousandth National Farm and Home Hour was presented by the National Broadcasting Company. Secretary of Agriculture Henry A. Wallace, a frequent participant in this program, was introduced by Morse Salisbury, Acting Director of Information, and chief of the Radio Service for almost all the ten years that the Department of Agriculture has been cooperating in the Farm and Home Hour.

PEOPLE, BROADCASTERS, GOVERNMENT

Remarks by the Honorable Henry A. Wallace, Secretary of Agriculture, delivered Monday, June 27, at 11:55 a.m., E.S.T., in the 3000th broadcast of the National Farm and Home Hour, and broadcast by NBC and 93 associated radio stations.

I am pleased to join with representatives of the listeners and representatives of the broadcasters in marking this occasion--the three-thousandth broadcast of the National Farm and Home Hour. I recall a day three years or more ago when I helped celebrate the two-thousandth broadcast of the Hour.

At that time I commented that both the broadcasters and the Government agency which I head have an obligation to perform certain services for the public. The Congress has directed the Department of Agriculture to acquire and diffuse useful information. The broadcasters have an obligation to operate in the public interest, convenience and necessity. One natural result is a program of the type of the National Farm and Home Hour.

I should say the broadcasters up to now have gone much further than mere compliance with the letter of their obligation under the law. Frank Mullen, who started the Hour, Bill Drips who now oversees it, and the majority of the owners and managers of the stations who are given the opportunity to broadcast it have shown enthusiasm for making it serve listeners.

They have had the insight to perceive the social significance of this Hour and other such sustaining educational programs. In the Farm and Home Hour we and others send out technical knowledge, or let you listeners know where you can get technical knowledge. The purpose is to help citizens cope with destructive natural forces, operate farms and homes efficiently, and secure the best return from investment and work that individual effort can bring. We also send some of the facts that all listeners must have in order to cooperate in the group actions that have been authorized to bolster up the farm part of the national economy, and thus help keep the whole economy sound. An important product of these nation-wide broadcasts should be understanding and good will among all the people, for all are affected by the new programs on behalf of agriculture.

This is an event that we do well to emphasize--the three-thousandth broadcast of a radio program of nation-wide public service. Insofar as I can speak for the listeners, and certainly on behalf of all Department of Agriculture people, I express thanks to President Lohr and other officers of the NBC. And I pledge the continued cooperation of this Department so long as the Hour is maintained.

WHAT! WATTS ARE NOT WHAT'S WHAT?

Extension workers are not radio technicians; most of us wouldn't recognize a kilocycle if we saw one. But when it comes to the matter of figuring out the coverage that should be provided by a station, and some of the reasons why one station of a certain power may serve a larger area than another with the same power, then we're all interested. A commercial broadcaster wants to know something about a station's coverage before he spends his money; we might want to know something about it before we spend our time in preparing educational broadcasts.

C. M. Jansky, Jr., recognized as one of the leading radio engineers in America, points out in a discussion in the VARIETY RADIO DIRECTORY for 1937-38 the factors which affect the strength of radio signals as they are received. Part of his discussion and illustrative charts are reproduced here:

Although less than five years ago the yardstick most used by prospective advertisers in evaluating coverage was 'power' it is today well recognized that power is relatively unimportant in determining coverage.

The factors which affect the location of the 1/2 millivolt contour (Ed.--A line outlining the area in which a satisfactory radio signal can be received) and therefore the number of square miles included are as follows:

- (1) The character of the territory the signal must travel over, that is, its electrical conductivity.
- (2) The position of the frequency assignment in the broadcast spectrum.
- (3) The efficiency of the antenna system.
- (4) Power.

In New England the electrical conductivity is low (poor), while in Texas and the Middle West it is high (good). Fig. 1 (next page) shows graphically the difference in coverage to be expected in the two territories for 1000 watts power on 1000 kc. with average antenna efficiency. In an area of high conductivity such as Texas, the area inside the 1/2 millivolt contour for an average frequency assignment and an average antenna will be 43 times as great as in New England or other localities where the conductivity is low. Fortunately for New England broadcast

stations the density of population is high as compared with most areas which enjoy a higher and more favorable conductivity.

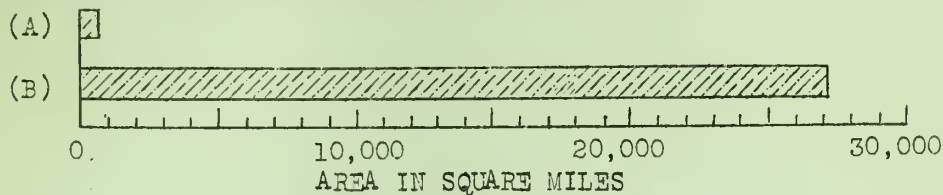


Fig. 1 Number of square miles inside 0.5 millivolt contour for (A) LOW CONDUCTIVITY and (B) HIGH CONDUCTIVITY for 1000 watts power and average antenna efficiency on 1000 kilocycles.

The Effect of Frequency Assignment on Coverage

Fig. 2 (below) compares the number of square miles inside the 1/2 millivolt contour of a 1000 watt station on 550 kc. with the number of square miles inside the same contour for a station of the same power on 1500 kc., assuming average conductivity and average antenna efficiency in each case. The ratio of the coverage on 550 kc. to that on 1500 kc. is 8.8 to 1. It would take a power in excess of 75 kw. on 1500 kc. to serve as much rural territory as can be served by 1 kw. (1000 watts) on 550 kc.

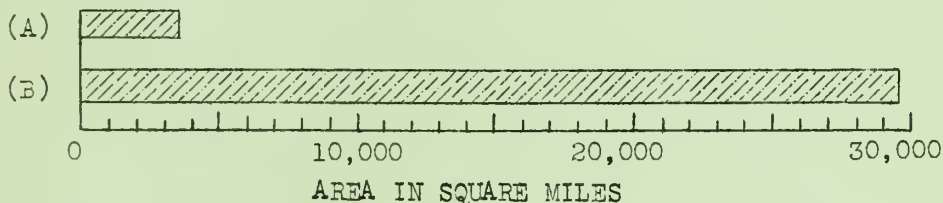


Fig. 2 Number of square miles inside 0.5 millivolt contour for (A) HIGH FREQUENCY ASSIGNMENT (1500 kilocycles) and (B) LOW FREQUENCY ASSIGNMENT (550 kilocycles) for 1000 watts power with average antenna efficiency and average conductivity.

The Effect of Antenna Efficiency on Coverage

The Effect of Terrain on Coverage

Fig. 3 (next page) shows the increase in the area inside the 1/2 millivolt contour which would result if a 1000 watt station on 1000 kc. in average conductivity territory should abandon an antenna system of low efficiency for one of high efficiency. The area inside the 1/2 millivolt contour would be increased by the factor 3.1 to 1.



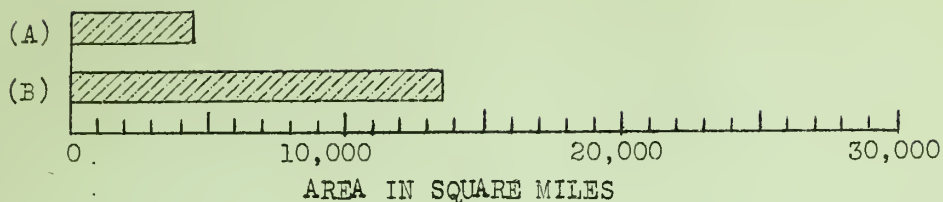


Fig. 3 Number of square miles inside 0.5 millivolt contour for (A) LOW ANTENNA EFFICIENCY (75 millivolts at one mile) and (B) HIGH ANTENNA EFFICIENCY (250 millivolts at one mile) for 1000 watts power on 1000 kilocycles with average conductivity.

The Effect of Power on Coverage

The above examples show how important are (1) the part of the country in which a station happens to be located, (2) the frequency assignment, and (3) antenna efficiency in determining the coverage area of a station. Fig. 4 (below) shows how relatively unimportant is a change in power of five times (from 1000 watts to 5000 watts) for the conditions which have been taken as average in the first four examples.

The increase in area inside the 1/2 millivolt contour is less than 2 to 1 for an increase in power of five times as contrasted with a possible increase of 3.1 to 1 for an improvement in antenna efficiency, an increase of 8.8 to 1 for a frequency shift, such as might be made inside the broadcast band, and an increase of 43 to 1 such as would result from moving from a low conductivity territory to a high conductivity one.

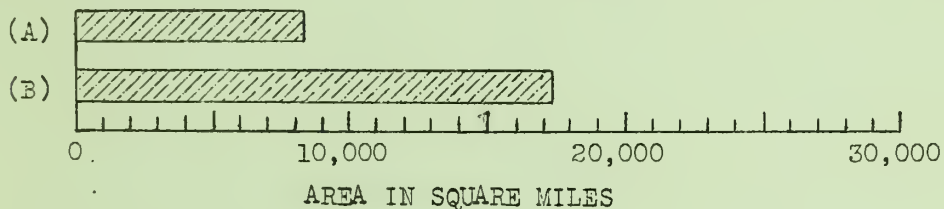


Fig. 4 Number of square miles inside 0.5 millivolt contour for (A) 1000 WATTS and (B) 5000 WATTS on 1000 kilocycles, average antenna efficiency and average conductivity.

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